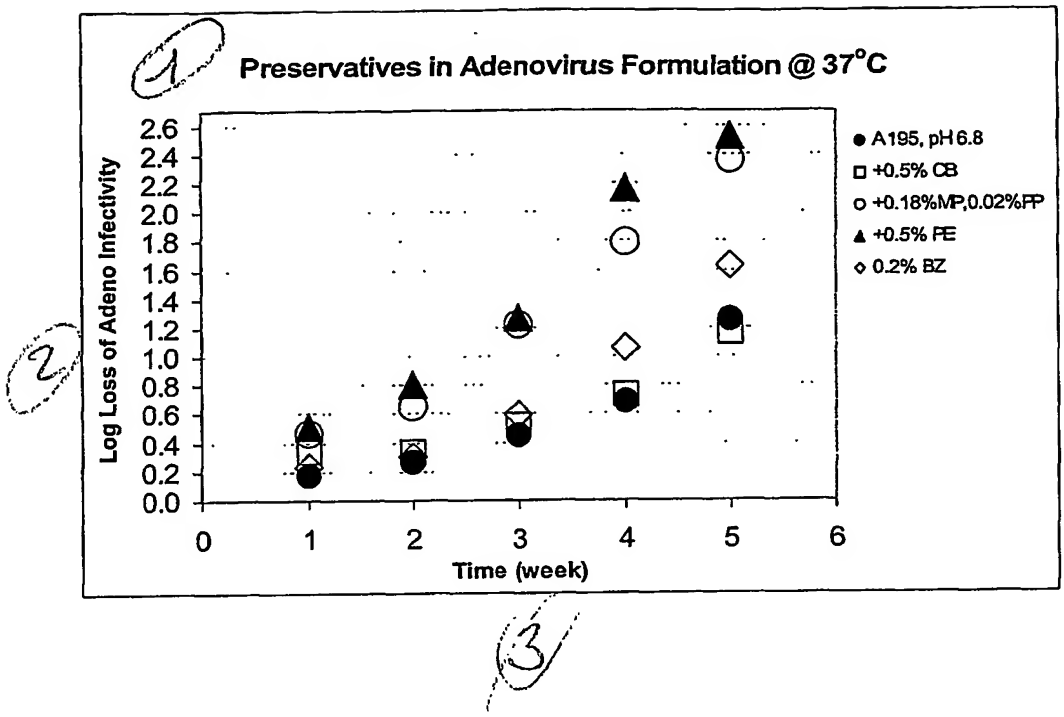
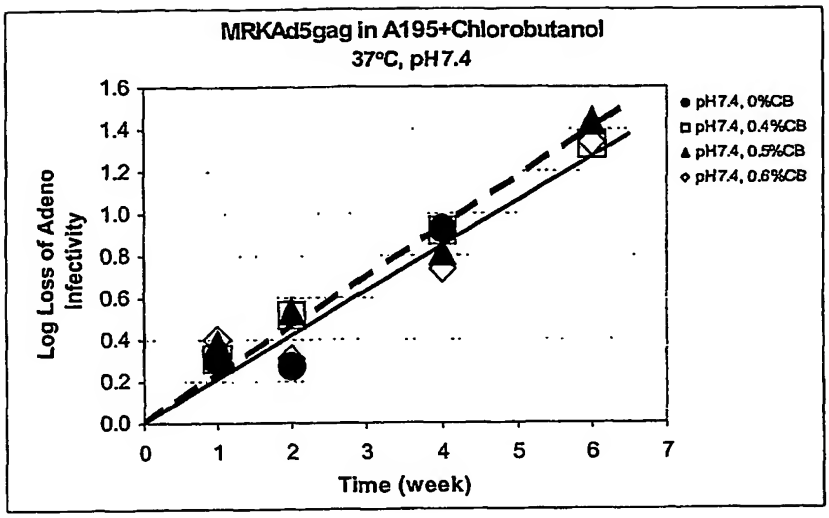

Preservatives in Adenovirus Formulation @ 37°C
Log Loss of Adeno Infectivity
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
Time (week)
A195, pH 6.8
+0.5% CB
+0.18%MP,0.02%PP
+0.5% PE
0.2% BZ

FIGURE 1

A.



B.

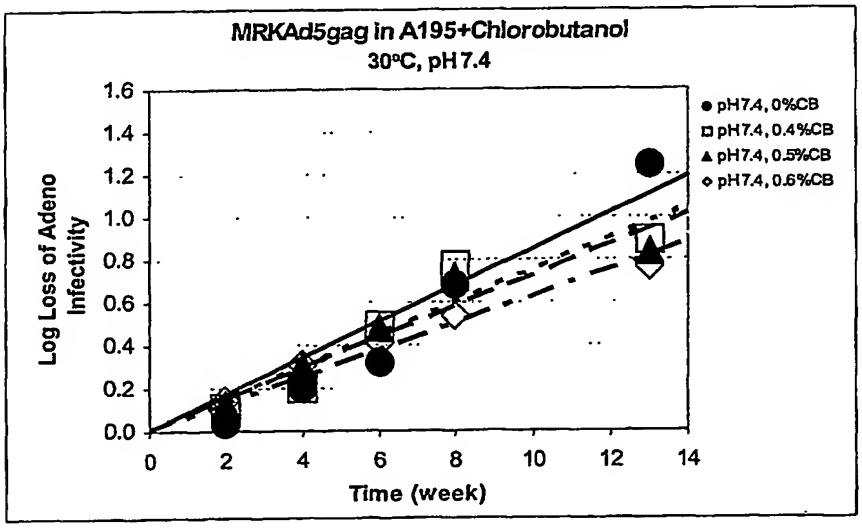
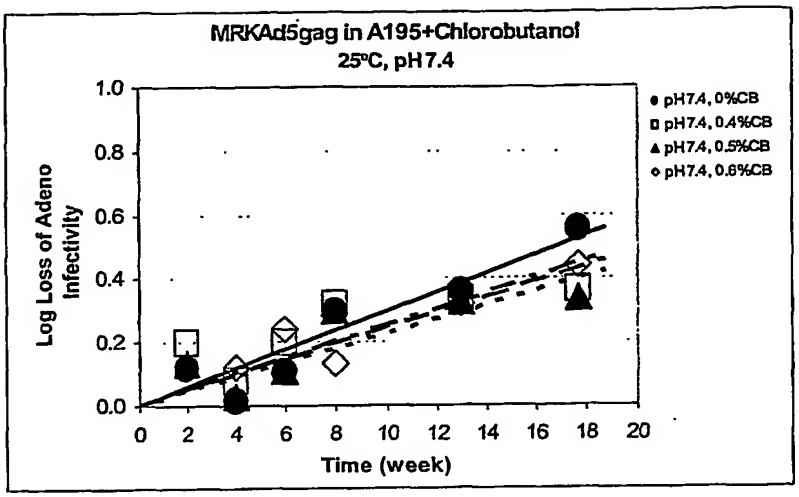


FIGURE 2A-2B

C.



D.

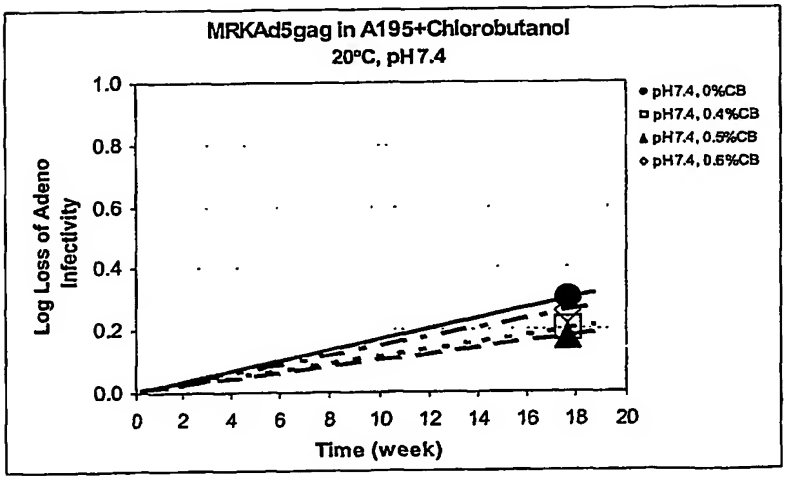
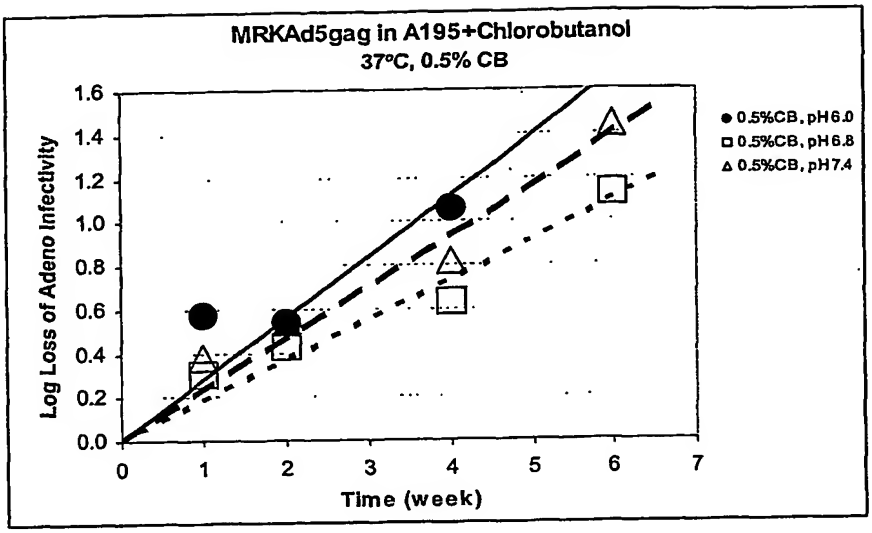


FIGURE 2C-2D

A.



B.

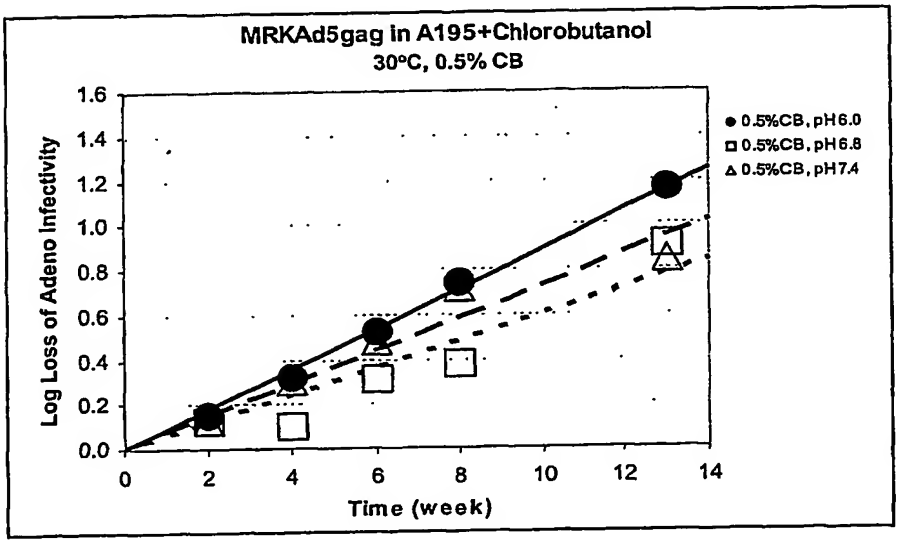
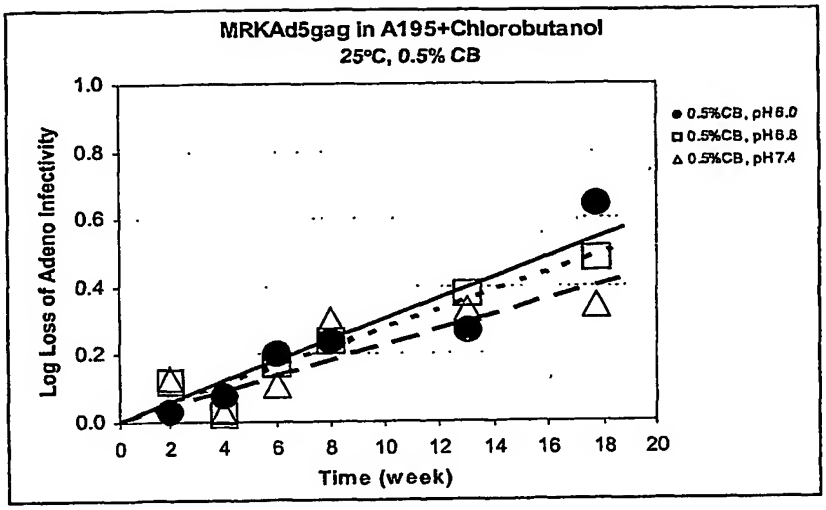


FIGURE 3A-3B

C.



D.

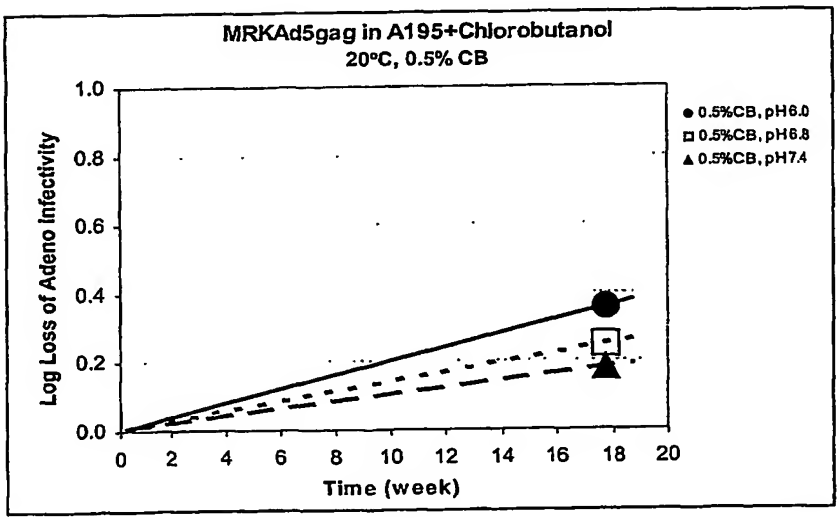


FIGURE 3C-3D

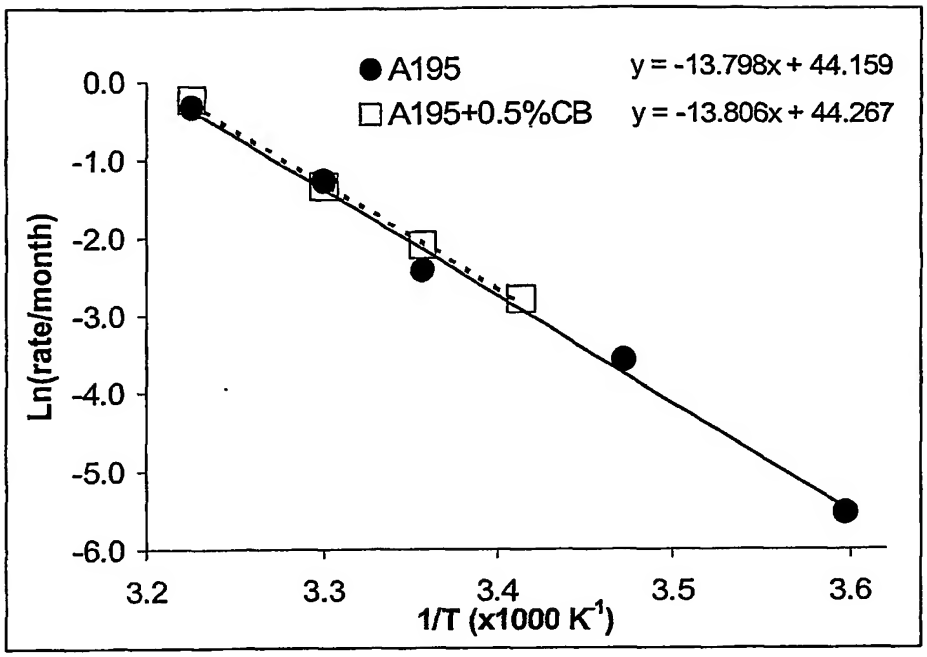

A195
y = -13.798x + 44.159
A195+0.5%CB
y = -13.806x + 44.267
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
Ln(rate/month)
3.2
3.3
3.4
3.5
3.6
1/T (x1000 K-1)

FIGURE 4

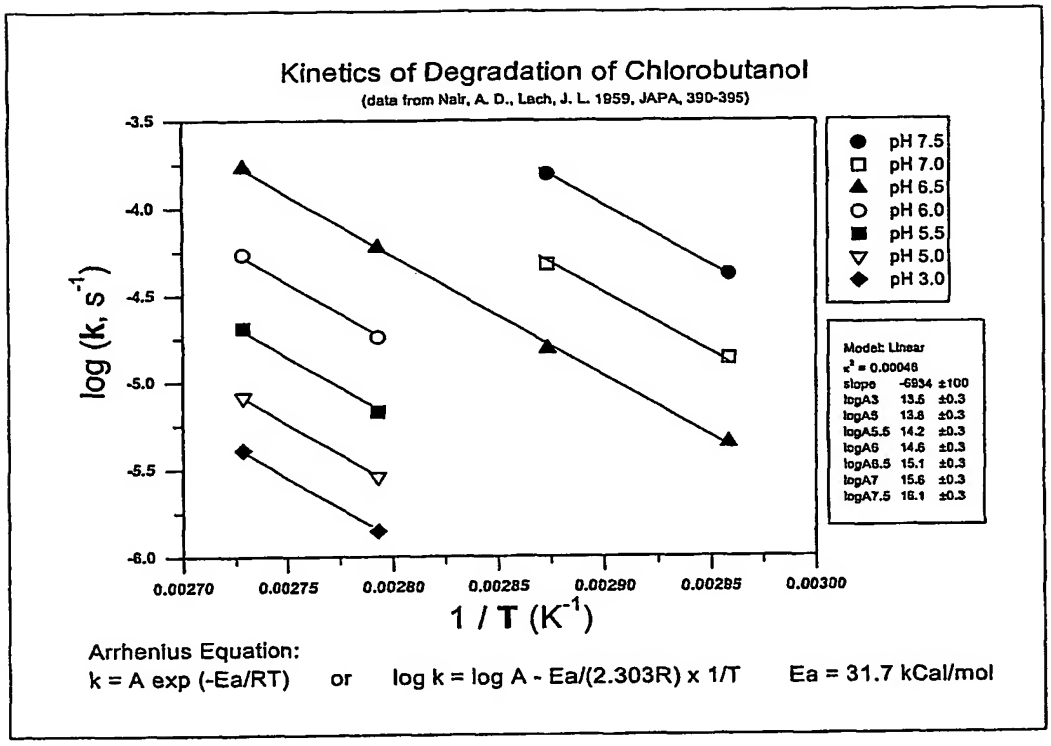

Kinetics of Degradation of Chlorobutanol
(data from Nair, A. D., Lach, J. L. 1959, JAPA, 390-395)
log (k, s-1)
-3.5
-4.0
-4.5
-5.0
-5.5
-6.0
0.00270
0.00275
0.00280
0.00285
0.00290
0.00295
0.00300
1 / T (K-1)
pH 7.5
pH 7.0
pH 6.5
pH 6.0
pH 5.5
pH 5.0
pH 3.0
Model: Linear
r2 = 0.00048
slope -6934 ±100
logA3 13.5 ±0.3
logA5 13.8 ±0.3
logA5.5 14.2 ±0.3
logA6 14.6 ±0.3
logA6.5 15.1 ±0.3
logA7 15.6 ±0.3
logA7.5 16.1 ±0.3
Arrhenius Equation:
k = A exp (-Ea/RT) or log k = log A - Ea/(2.303R) x 1/T Ea = 31.7 kCal/mol

FIGURE 5

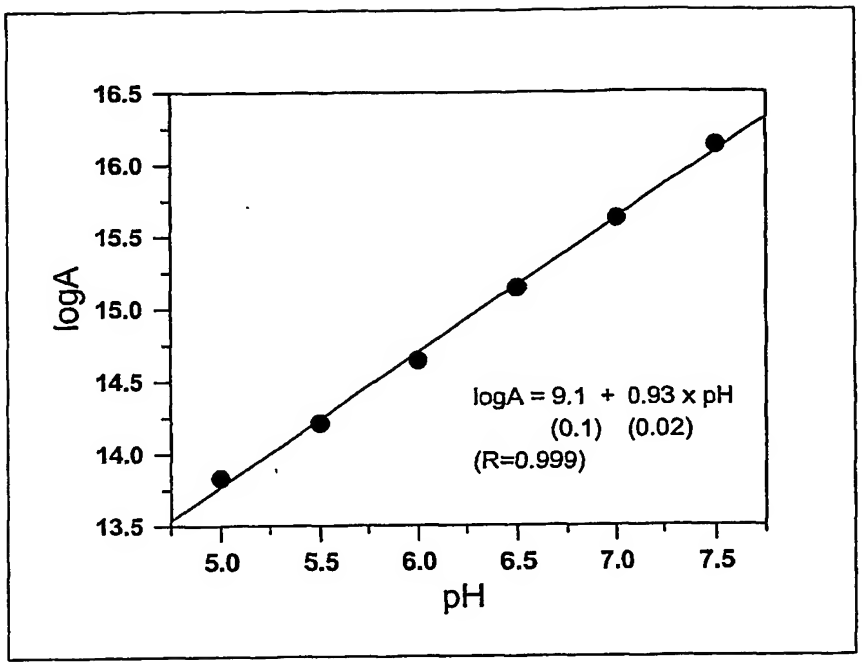

16.5
16.0
15.5
15.0
14.5
14.0
13.5
logA
5.0
5.5
6.0
6.5
7.0
7.5
pH
logA = 9.1 + 0.93 x pH
(0.1) (0.02)
(R=0.999)

FIGURE 6

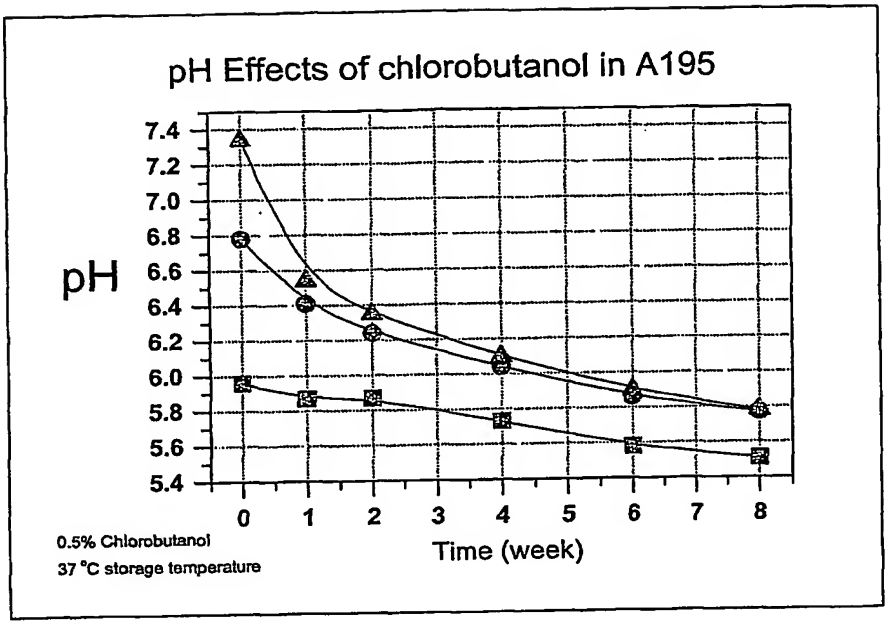

pH Effects of chlorobutanol in A195
pH
7.4
7.2
7.0
6.8
6.6
6.4
6.2
6.0
5.8
5.6
5.4
0
1
2
3
4
5
6
7
8
Time (week)
0.5% Chlorobutanol
37 °C storage temperature

FIGURE 7